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CATALOGUE OF MAMMALIA.

Inhabiting the MALAYAN PENINSULA AND ISLANDS.

*Collected or observed by THEODORE CANTOR, M. D., Bengal
Medical Service.*

☞ Localities printed in Italics signify those from whence the animals of the Catalogue were obtained; in ordinary type those previously given by authors.

QUADRUMANA.

SIMIADÆ.

GEN.—PITHECUS, *Geoffroy.*

PITHECUS SATYRUS, *Geoffroy.*

SYN.—*Simia Satyrus*, Linné.

Simia Agrias, Schreber.

Singe de Wurmb, Audebert.

Papio Wurmbii, Latreille.

Pithecus Satyrus, Desmarest.

Simia Wurmbii, Kuhl.

Orang Pandak, Raffles.

Simia Satyrus,
Simia Abellii,
Simia Wurmbii, } apud Fisher.

Simia Satyrus, apud Ogilby.

Satyrus rufus, Lesson.

Pithecus Satyrus, apud Martin.

Simia Satyrus, apud Schinz.

“O’rang U’tan” of the Malays.

HAB.—*Borneo, Sumatra.*

The physiognomy and the colour of the face exhibit a marked difference in living individuals from the two localities.*

GEN.—HYLOBATES, *Illiger.*

HYLOBATES LAR, Ogilby.

SYN.—Grand Gibbon, Buffon.

Homo Lar, Linné, Mantiss.

Simia longimana, Schreber.

Simia longimana, Grand, et Petit Gibbon, Erxleb.

Simia Lar, Linné Syst.

Le Gibbon, Audebert.

Pithecus Lar, Desmarest.

Simia albimana, Vigors and Horsfield.

Simia Lar, apud Fischer.

Hylobates Lar, Lesson, apud Martin.

Hylobates albimanus, apud Schinz.

“Ungka étam” of the Malays of the Peninsula.

HAB.—*Malayan Peninsula.*

Siam, Burmah, Tenasserim.

LIGHT-COLOURED VAR.

SYN.—Petit Gibbon, Buffon.

Simia Lar, β , Linné.

Pithecus variegatus, Geoff.

Pithecus variegatus, apud Kuhl.

Pithecus variegatus, apud Desmarest.

Hylobates variegatus, Ogilby.

Hylobates leuciscus, apud Cantor. Ann. and Mag. of Nat. Hist.

“Ungka puti” and “Wow-wow” of the Malays of the Peninsula.

* An excellent likeness of a young male Bornean Orang Utan, living in my possession upwards of two years, has lately been taken by Mr. Thornam, one of the artists of the scientific expedition on His Danish Majesty’s Ship ‘Galathea.’

The colour varies from blackish-brown to light-brown, yellowish or dirty-white, sometimes uniform, sometimes mottled. The index and middle toes, of both or of one foot, are in some individuals, of whatever sex or shade of colour, united by a broad web throughout the whole of the first phalanx; in some partially so, and in others not. The ribs vary from twelve (7+5) to thirteen pairs (7+6,) as observed by Mr. Blyth, (Journal Asiatic Society 1841, Vol. X. p. 839.)

HYLOBATES AGILIS, F. Cuvier.

VAR. UNGKA ETAM, Martin.

SYN.—Ungka etam, Raffles.

Oungka, Hylobates Lar, F. Cuv.

Simia Lar, Vigors and Horsfield.

Hylobates Rafflesii, Geoff. apud Ogilby.

Hylobates variegatus, Müller apud Schinz*.

“Ungka etam” of the Malays of the Peninsula.

HAB.—Malayan Peninsula, (Malacca, Purlis, Kéddah, Púngah.)
Sumatra.

The first phalanges of the index and middle toe are in some individuals of either sex, partially or entirely united by a web. Sometimes the first phalanx of the middle toe is partially united to the fourth.

An adult male examined, had thirteen pair of ribs (6+7), an adult female fourteen, (7+7), a young male on the left side thirteen (7+6), on the right twelve (7+5). In these three individuals the stomach was constricted at the fundus and the pyloric part, which characters, when compared with specimens of *Hylobates agilis* from Sumatra, will go far to decide the identity of that species and *H. Rafflesii*. On the Malayan Peninsula, the latter appears to be less numerous than *H. Lar*. The light-coloured Var. of *H. agilis* I have not seen.

HYLOBATES LEUCISCUS, Kuhl.

SYN.—“Wou-wou,” Camper.

Simia leucisca, Schreber.

Simia moloch, Audebert.

Pithecus cinereus, Latreille.

Pithecus leuciscus, Geoffroy.

Pithecus leuciscus, apud Desmarest.

* Schinz gives as a synonyme: *Pithecus variegatus*, Geoff. which, however, is *Hylobates Lar*, Var.

Simia leucisca, apud Fisher.

Hylobates leuciscus, apud Ogilby.

Hylobates leuciscus, apud Schinz.*

HAB.—*Borneo*, ?

Java.

GEN.—SEMNOPIITHECUS, *F. Cuv.*

SEMNOPIITHECUS OBSCURUS, Reid.

SYN.—*Simia maura* ? Lin. Lotong, apud Raffles. †

Semnopithecus leucomystax, Temm. in MSS.

Semnopithecus obscurus, apud Martin.

Presbytes obscura, Gray, List of Mamm. B. M.

Semnopithecus sumatranus, Müller, apud Schinz. ‡

Semnopithecus halonifer, Cantor, Proceed. Linn. Soc.

“Lótong” or “Lótong étam,” of the Malays of the Peninsula.

HAB.—*Malayan Peninsula*, *Pinang*, *Singapore*.

District adjacent to Singapore, in the Malayan Peninsula.

SEMNOPIITHECUS ALBOCINEREUS, Schinz.

SYN.—*Cercopithecus albocinereus*, Desmarest.

Simia albocinerea, Fisher.

Semnopithecus dorsatus, (young) Waterhouse MSS. § apud

Presbytes cinerea, Gray, List.

[Martin.

Semnopithecus albimanus, Is. Geoff. ?

“Ka-ka” of the Malays of the Peninsula.

HAB.—*Malayan Peninsula*.

* Among the Syn. occurs *Ungka puti*, Raffles, which is *Hylobates agilis*.

† The Hab. Pinang and Singapore, in neither of which islands *Semnopithecus femoralis* appears to occur, tends to prove, that Sir S. Raffles did not, as it has been supposed, refer to that species. His short description indicates *S. obscurus* (Lotong,) the most common species in both islands. Sir S. Raffles evidently did not describe the living animal, or he would not have omitted one of the most striking characters, viz. the white marks of the face, which, in preserved specimens, become obliterated, so that the face appears uniformly black. The omission of this character by Sir S. Raffles, and subsequently by later describers of this species, has given rise to confusion.

‡ Schinz repeats *S. femoralis*, Martin, as a Syn. for *S. sumatranus*, and says in a note, that Müller in his monograph of *Semnopithecus* refers that species to his *S. sumatranus* (Schinz Syn. Mam. I. p. 39, note.) Were even the two identical, the species should not have been renamed, as *S. femoralis*, Horsfield, not Martin, would take precedence, being the denomination under which Dr. Horsfield described it in the *Appendix to the Life of Sir T. Stamford Raffles*, 1830.

§ Martin, p. 481, refers the young *S. dorsatus* to *S. femoralis*, but the description is that of the young of the present species.

The young of this species, described by Martin, p. 481, is from the peculiar distribution of the colours, as easily distinguished from the young of *S. obscurus*, as it is difficult to distinguish the adults of these two species. Both attain to the same size, have in common the shape of the body, the white marks of the face, and the general distribution of colours. In the adult of the present species the prevailing colours are clear ashy-grey above, and white below. On either parietal bone, the hairs form a whorl, and the anterior are directed forward, projecting beyond the eyebrows. The two whorls are distinct in the young, though the hairs of the head are too short to mingle with the long, erect, divergent, black hairs of the eyebrows. Just below the spot where the two whorls come in contact, the skull is naked, thus forming a rather broad, triangular forehead. The general colour of *S. obscurus*, both in the young and adult state, is considerably darker. On the upper parts a blackish, or brownish ash colour prevails, lighter below, which acquires in some individuals a whitish appearance, from the white skin of the stomach, which is but scantily covered with hairs. Of parietal whorls there is no trace; the hairs of the head, directed backwards, originate in a peak as far down as the glabella, and are smoothed down on the top of the head from the occipital crest backward.

SEMNOPIITHECUS CRISTATUS, Horsfield.

SYN.—*Simia cristata*, Chingkau, Raffles.

Semnopithecus pruinus, Desmarest.

Semnopithecus pruinus, apud Lesson.

Semnopithecus cristatus, apud Martin.

Presbytes cristata, Gray:* List.

Semnopithecus cristatus, apud Schinz.*

HAB.—*Pinang, Malayan Peninsula.*

Sumatra, Borneo, Banka.

The whitish colour round the eyes and the mouth is present, though less distinct in this than in the preceding two species.

SEMNOPIITHECUS FEMORALIS, Horsfield.

SYN.—*Semnopithecus chrysomelas*, Muller, apud Martin and Schinz.

* Gray quotes *S. maurus*, Horsfield, and Schinz *S. femoralis*, Martin, as synonyms, both of which are species, in physiognomy, colours, and, as far as *S. maurus* is concerned, in habits distinctly different from the present one.

HAB.—*Purlis* (on the Malayan Peninsula.)

Borneo, Java (?), Sumatra (?).

In a young male of this, apparently everywhere difficultly procurable species, the face during life was intense black, except the white-haired lips and the chin, which were of a milk-white colour. In the preserved specimen, the latter soon changed into the dull brownish-black of the rest of the face. The interdigital membrane, often loosely connecting the first phalanges of the four fingers and toes in *S. obscurus*, *albocinereus*, *cristatus* and other Malayan monkeys, was also present in this individual, in which even the first and second phalanges of the index and middle toe were thus connected. In preserved specimens, the interdigital web becomes shrivelled and indistinct, and therefore, being at all times a very questionable, if not altogether inadmissible, specific character, ought in such state to be least relied upon. On its arrival at Pinang, the animal was in too sickly a state to allow of its natural habits being observed.

GEN.—*CERCOPITHECUS*, apud *Ogilby*.

CERCOPITHECUS CYNOMOLGUS, *Ogilby*.

SYN.—*Simia cynomolgus*, Linné.

Simia aygula, Linné.

Simia attys, Schreber.

Macacus cynomolgus, Desmarest.

Simia fascicularis, Raffles.

Cercocebus aygula, Geoff. apud Horsfield.

Macacus cynomolgus, apud Gray : List.

Macacus cynomolgus, apud Schinz.

“Kra” of the Malays of the Peninsula.

HAB.—*Pinang*, *Malayan Peninsula*.

Sumatra, Java, Banka, Borneo, Celebes, Timor, Tenasserim, Nicobar Islands.

The first phalanges of the four fingers and toes, and in some individuals also the second phalanges of the toes, are united by a membrane.

GEN.—*PAPIO*, apud *Ogilby*.

PAPIO NEMESTRINUS, *Ogilby*.

SYN.—*Simia nemestrinus*, Linné.

Simia platypygos, Schreber.

Simia fusca, Shaw.

Macacus nemestrinus, Desmarest.

Simia carpolegus, Raffles.

Macacus nemestrinus, apud Gray, List.

Macacus nemestrinus, apud Schinz.

“Broh” of the Malays of the Peninsula.

HAB.—*Pinang, Malayan Peninsula.*

Sumatra, Borneo.

The interdigital membrane of the first phalanges of the four fingers and index, and middle toe, occurs also in this species.

LEMURIDÆ.

GEN.—*NYCTICEBUS, Geoffroy.*

NYCTICEBUS TARDIGRADUS, Waterhouse, Cat. Zool. Soc.

SYN.—*Lemur tardigradus*, Linné apud Raffles.

Nycticebus bengalensis, Geoff.

Nycticebus javanicus, Geoff.

Loris tardigradus, Geoff.

Stenops javanicus, Van der Hoeven.

Stenops tardigradus, Wagner, apud Schinz.

“Kúkang” of the Malays of the Peninsula.

HAB.—*Pinang, Malayan Peninsula.*

Java, Siam, Tenasserim, Arracan, Bengal, Sylhet, Assam.

The sublingual appendage is cartilaginous, of a white colour; the apex divided in a number of fine points. The new-born is of the same colour as the adult, but paler, and has the dense, soft fur, mixed with a number of long hairs, grey at the base, white at the point. In a male, measuring from the apex of the nose to the root of the tail one foot two and a half inches, the tail five-eighths of an inch, the dimensions of the intestinal canal, were:

Small Intestines,	3 feet $\frac{1}{2}$ inches.
Large ditto,	2 ,, $3\frac{1}{2}$,,
Cæcum,	0 ,, $3\frac{1}{2}$,,

GEN.—*GALEOPITHECUS, Pallas.*

GALEOPITHECUS TEMMINCKII, Waterhouse.

SYN.—*Lemur volans*, Linn. apud Marsden and Raffles.

“Kúbong” or “Kúrbong” of the Malays of the Peninsula.

HAB.—*Singapore, Pinang, and other Islands in the Straits of Malacca, Lancavy Islands, Malayan Peninsula.*

Java, Sumatra, Borneo, Pelew Islands, Siam.

Two individuals are never of precisely the same design and ground-colour, which latter varies from clear ashy-grey to greyish-brown or chesnut. The white spots on the back of the anterior extremities, appear to be constant in every age. Though there are four mammae, situated in pairs one above the other, close to the axilla, of a number of females with young, none had more than one offspring, which was carried wrapped in the wide mantle-like membrane. In several shot on the hills at Pinang, the stomach contained vegetable matter, but no remains of insects. In confinement, plantains constitute the favourite food, but deprived of liberty the animal soon pines and dies. The anterior margin of the broad smooth tongue has a fringed appearance, produced by a number of rounded papillæ. In a male, measuring from the apex of the nose to the root of the tail one foot four inches, the tail nine inches, the intestinal canal was of the following dimensions :

Small Intestines,	4 feet 4 inches.
Large ditto,	7 ,, 7 ,,
Cæcum,	0 ,, 11 ,,
Costæ veræ seven pairs, spurix six pairs.	

CARNIVORA.

CHEIROPTERA.

INSECTIVORA.

GEN.—RHINOPOMA, *Geoffroy.*

RHINOPOMA, *HARDWICKII*, Gray.

SYN.—*Vespertilio (Rhinopoma) Hardwickii*, Elliot.

HAB.—*Malayan Peninsula.*

Southern Mahratta country, Calcutta, Allahabad,* Agra,†
Mirzapore.

A single male, in no way differing from Bengal individuals, was obtained by Captain Congalton, H. C. Steamer 'Diana,' in a cave on an island in Girbee river, in Latitude 8° 0', on the Malayan Peninsula.

This species is provided with a true cæcum, the existence of which in all Cheiroptera has erroneously been denied, or restricted to the car-

* Numbers inhabit the subterraneous Hindoo place of worship within the Fort at Allahabad.

† In the Taj-Mahal.

diac cæcum observed in the genera *Vampyrus* and *Pteropus*. The present species, and *Megaderma spasma*, also possessing a true cæcum, thus present a higher organisation than has hitherto been attributed to Cheiroptera.

Length of the small Intestine,	$7\frac{2}{8}$ inches.
,, ,, large ditto,	1 ,,
,, ,, cæcum,	$0\frac{3}{16}$,,

GEN.—MEGADERMA, *Geoffroy*.

MEGADERMA SPASMA, *Geoffroy*.

SYN.—*Vespertilio spasma*, Schreber.

Megaderma trifolium, *Geoffroy*.

Megaderma spasma, apud *Fisher*.

Megaderma spasma, apud *Schinz*.

HAB.—*Pinang, Malayan Peninsula*.

Singapore, Java, Ternate.

Incis. $\frac{0}{4}$ Canin. $\frac{1-1}{1-1}$ Molar, $\frac{4.4}{5.5}$

Length of the head and body $3\frac{2}{8}$ inches.

,, ,, ,, inter-femoral membrane, 1 inch.

Extent of the flying membrane, .. 14 inches.

The five caudal vertebræ project one quarter of an inch beyond the pelvis, but are completely enveloped in the inter-femoral membrane, and therefore not apparent. The inguinal warts are, as in the *Rhinolophi*, most developed in the adult female. A true cæcum, though smaller than in *Rhinopoma Hardwickii*, is present in this species.

Length of the small Intestines, 7 inches.

,, ,, large ditto, $1\frac{1}{16}$ inches.

,, ,, cæcum, $0\frac{1}{16}$ inches.

GEN.—NYCTINOMUS, *Geoffroy*.

NYCTINOMUS TENUIS, *Horsfield*.

SYN.—*Nyctinomus tenuis*, apud *Fisher*.

Molosse grêle, *Temminck*.

Dysopes tenuis, *Schinz*.

HAB.—*Malayan Peninsula*.

Java, Sumatra, Borneo.

Two individuals had the back of a velvety snuff colour, becoming a shade lighter on the under-parts. Entire length of the larger four and four-eighth inches, of which the tail one and two-fourth inches. Extent of the flying membrane ten and four-eighth inches. In the size of the ears some difference exists in the two.

GEN.—TAPHOZOUS, *Geoffroy*.

TAPHOZOUS MELANOPOGON, Temminck.

SYN.—Taphozous melanopogon, apud Schinz.

HAB.—*Pulo-Tikus, Pulo-Lancávy, Malayan Peninsula.*

Java, Caves of Kannerá.

Temminck's description, as quoted by Schinz, is taken from the adult male, the Malayan individuals of which differ in having the black beard surrounded by a broad light-brown band, covering, like a pelerine, the chest and shoulders. The rest of the lower parts are either white or brownish-white. The flying membrane in the adult male is whitish; in the females and young males it is blackish or brownish between the legs, along the sides of the body and the arms. The colour of the female and young male is on the back of a more or less brownish mouse-grey, becoming much lighter or whitish beneath, but both are destitute of the black beard, which, out of a number of between forty and fifty from different Malayan localities, occurred but in seven males, although some of the beardless males in size and extent of flying membrane equalled, or even slightly exceeded, the bearded. The entire length of the largest male was four inches, of which the tail measured one inch.

Extent of flying membrane fifteen and four-eighth inches.

Dentition: Incis. $\frac{0}{4}$ Canin. $\frac{1-1}{1-1}$ Molar, $\frac{4.4}{5.5}$

TAPHOZOUS SACCOLAIMUS, Temminck.

SYN.—Taphozous pulcher, Elliot MSS. apud Blyth.

HAB.—*Pinang.*

Java, Sumatra, Borneo, Celebes, Southern India.

In two males captured at Pinang in houses in the valley, the colours somewhat differ from Temminck's description, quoted by Schinz. In the larger, the head and back are of a sooty black, with a few white dashes, the lower parts of a pure white. The flying membrane is black

between the legs, along the sides of the body and the arms, and between the index, second and third fingers; the rest being dull semi-transparent white. The length from the apex of the nose to the posterior margin of the inter-femoral margin, is four and seven-eighth inches, of which the tail measures one inch. The extent of the flying membrane eighteen inches. Dentition as in *T. melanopogon*. The smaller differs in having the chest of a pale brownish-white, the abdomen and the pubes light rust-coloured, leaving the sides pure white. Mr. Blyth quotes *Taphozous pulcher*, Elliot, from Southern India, as being "black-brown above with white pencillings, and pure white below," (Journal As. Soc. XIII. 1844. p. 492,) from which, as well as from Mr. Elliot's specimen, at present in the Museum of the Asiatic Society, it appears that the Indian more resemble the Malayan individuals than those of the Indian Archipelago, described by Temminck. The internal surface of the gular sac secretes, an odorous oily fluid, of a light brown colour.

GEN.—RHINOLOPHUS, *Geoffroy*.

RHINOLOPHUS, *Gray*.

RHINOLOPHUS AFFINIS, *Horsfield*.

HAB.—*Pinang*.

Java.

Of two individuals, the male is reddish-brown above, light greyish-brown beneath; the female is above golden fulvous, which becomes lighter on the lower parts.

Entire length of the male, .. $2\frac{4}{8}$ inches—female, $2\frac{7}{8}$ inches.

Tail, $\frac{4}{8}$,, female, $\frac{5}{8}$,,

Extent of flying membrane, .. $11\frac{2}{8}$,, female, $12\frac{4}{8}$,,

Incis. $\frac{2}{4}$ Canin. $\frac{1-2}{1-1}$ Molar, $\frac{5.5}{5.5}$

The inguinal warts are highly developed in the female.

HIPPOSIDEROS, *Gray*.

A. Adult male with a frontal pore, with a tuft of rigid hairs.

HIPPOSIDEROS DIADEMA, *Gray* ?

SYN.—*Rhinolophus Diadema*, *Geoffroy* ?

HAB.—*Pinang*, *Malayan Peninsula*.

Timor.

The Malayan individuals are, according to age and sex, of a more or less intense reddish or greyish-brown above, under certain lights assum-

ing a golden lustre, owing to the whitish points of the hairs; beneath, they are of a lighter greyish-brown. Individuals occur of a light golden-brown, in colours resembling *Rhinolophus larvatus*, Horsfield. In the adult male, the livid flesh-coloured nasal appendage is larger, more complicated, and somewhat different from the figure given by Geoffroy St. Hilaire, (Ann. du Muséum XX, Pl. 5 and 6), which resembles the female in the simpler appendage and in the absence of the frontal pore. The latter organ, in the adult male, is large, secreting a yellowish brown oily fluid, the odour of which resembles that of *Arctictis Binturong*, Fisher. A female, during lactation, presented a great inequality in the development of the inguinal warts, of which the right measured one-quarter of an inch in length. At the time of her capture, it was reported that a young one had been "sucking" the right wart. Not having myself observed the young clinging to that organ, I cannot vouch for the correctness of a statement which, if authentic, would tend to explain the use, being to afford support to the young, when not sucking. The size of the Malayan individuals appears to exceed those from Timor, the entire length of the former being five and six-eighth inches, of which the tail measures two inches. Extent of the flying membrane twenty-one and a half to twenty-two inches. The extremity of the 2nd phalanx of the fourth and fifth fingers is bifid, or terminating with two minute diverging joints, a structure also existing in the Malayan individuals of the following species.

$$\text{Incis. } \frac{2}{4} \quad \text{Canin. } \frac{1-1}{1-1} \quad \text{Molar, } \frac{5.5}{5.5}$$

HIPPOSIDEROS NOBILIS, Gray.

SYN.—*Rhinolophus nobilis*, Horsfield.

Rhinolophus nobilis, apud Fisher.

Rhinolophe fameux, Temminck.

Rhinolophus nobilis, apud Schinz.

HAB.—*Pinang, Malayan Peninsula.*

Java, Sumatra, Timor, Amboyna.

The frontal pore is less developed than in the former species, as compared with which the present is of a more slender form, though of a size little less inferior. Entire length five and four-eighth inches, of which the tail measures two and one-eighth inches. Extent of flying membrane twenty-one and four eighth inches. Dentition similar to that

of *H. Diadema*. In the valley of Pinang single individuals of both species are at night abroad at all seasons, but during the rains they are particularly numerous.

HIPPOSIDEROS VULGARIS, Gray.

SYN.—*Rhinolophus vulgaris*, Horsfield.

Rhinolophus insignis, Var. apud Temminck.

Rhinolophus insignis, Horsf. apud Schinz.

Rhinolophus vulgaris, Horsf. *female of insignis*, apud Schinz.*

HAB.—*Pinang*.

Java.

Entire length four inches, of which the tail measures one and three-eighth; extent of flying membrane fourteen inches.

Incis. $\frac{2}{4}$ Canin. $\frac{1-1}{1-1}$ Molar, $\frac{4.4}{5.5}$

HIPPOSIDEROS MURINUS, Gray.

SYN.—*Rhinolophus murinus*, Elliot.

HAB.—*Pinang*.

Southern Mahratta Country, Nicobar Islands.

Entire length two and four-eighth inches, of which the tail measures one inch. Extent of flying membrane nine and four-eighth inches.

Dentition similar to that of the last species.

B. Forehead simple.

HIPPOSIDEROS GALERITUS, N. S.

H. prosthematicis simplicis membranâ transversâ latâ, altè erectâ, auriculas tangente; auricularum, latè pyriformium, apicibus laciniâ exsertis, besse postico lobuloque basali villosis; vellere longo, denso, molli, bicolore; suprâ saturatè, subtus pallidius-fusco-rufescenti.

Latet fœmina.

HAB.—*Pinang*.

Entire length three inches, of which the tail measures one inch. Extent of the flying membrane ten and four-eighth inches.

Incis. $\frac{2}{4}$ Canin. $\frac{1-1}{1-1}$ Mol. $\frac{4.4}{5.5}$

The livid flesh-coloured nasal appendage is simple but large, occupying the whole upper part of the face and the forehead; the horse-shoe or

* The only individual of *Rhinolophus vulgaris*, Horsfield, observed at Pinang, happened to be a *male*.

nasal disk covers the short, rounded, hairy muzzle, which has two leaves on either side; the transversal membrane is concave, as broad and long as the horizontal horse-shoe, which it joins under a right angle, while its sides are almost in contact with the ears. The latter are sub-erect, broader than long, their breadth equalling the length of the head; the shape is broad, pyriform, narrowing towards the apex, which appears like a small artificially rounded flap, scarcely elevated above the level of the fur covering the vertex. More than two-thirds of the back of the ear is covered with fur, leaving a narrow naked line along the external margin, which, as well as the singular shape of the ear itself, affords a distinguishing character. The hairs are buff or whitish at the base, the other half of their length brown. The general colour of the upper parts is deep-brown, with a slight reddish hue, becoming a shade lighter beneath.

This species somewhat resembles *Hipposideros apiculatus*, Gray (*Vespertilio speoris*, Schneider, apud Schreber; *Rhinolophus speoris*, Geoffroy,) from which it however differs in the absence of the frontal pore, in the shape of the ears, and in colours. A solitary male was captured in the valley of Pinang.

GEN.—*VESPERTILIO*, Linné.

VESPERTILIO, Gray.

VESPERTILIO ADVERSUS, Horsfield ?

SYN.—*Vespertilio adversus*, Fisher ?

Vespertilio adversus, Temminck ?

Vespertilio cineraceus, Blyth MSS.

HAB.—*Pinang*.

Java, Calcutta.

This bat having the characteristic distinction of the upper incisor, described by Horsfield, is above greyish-brown, beneath light-greyish, measuring in length three and two-eighth inches, of which the tail is one and four-eighth inch. Extent of flying membrane ten and four-eighth inches. It differs from *V. adversus* in having on each side five molars, of which but two are spurious, which character also obtains in *V. cineraceus*, Blyth MSS. and specimen in the Museum Asiatic Society, which (as observed by Mr. Blyth,) as well as the present, may prove varieties of *V. adversus*, Horsfield.

KIRIVOULA, Gray.

KIRIVOULA PICTA, Gray.

SYN.—*Vespertilio ternatanus*, Seba?

Vespertilio pictus, Pallas, apud Horsfield.

Vespertilio kerivoula, Boddaert.

Vespertilio kerivoula, apud Geoffroy.

HAB.—*Pinang*.

Java, Sumatra, Borneo, Ceylon.

KIRIVOULA TENUIS, Gray.

SYN.—*Vespertilio tenuis*, Temminck, apud Schinz.

HAB.—*Pinang*.

Java, Sumatra, Borneo.

A single male, in colours slightly differing from Temminck's, being above of a dark greyish-brown, many of the hairs with white points; beneath of a lighter shade. Entire length three and two-fourth inches, of which the tail one and four-eighth inch. Extent of flying membrane ten inches.

Incis. $\frac{2-2}{6}$ Canin. $\frac{1-1}{1-1}$ Mol. $\frac{5.5}{5.5}$

Trilatitus, Gray.

TRILATITUS HORSFIELDII, Gray.

SYN.—*Vespertilio tralatitius*, Horsfield.

Vespertilio Gärtneri, Kuhl, apud Schinz.

HAB.—*Pinang*.

Java, Sumatra.

Scotophilus, Leach, apud Gray.

SCOTOPHILUS TEMMINCKII, Gray.

SYN.—*Vespertilio Temminckii*, Horsfield.

Vespertilio Belangerii, Isid. Geoff.

Vespertilio noctulinus, Isid. Geoff.

Scotophilus castaneus, Gray.

Nycticeius Temminckii, Schinz.

Nycticeius Belangerii, Temminck, apud Schinz.

Nycticeius noctulinus, Temminck, apud Schinz.

“Klâwah” of the Malays of the Peninsula.

HAB.—*Singapore, Pinang, Malayan Peninsula and Islands.*

Java, Sumatra, Borneo, Timor, Pondicherry, Calcutta.

As observed by Schinz, this species is very variable in its colours according to age, all of which variations occur in individuals inhabiting Pinang and the Malayan Peninsula. The following are the specific names attributed to different individuals of this species:—

1. *Vespertilio Temminckii*, as originally described and figured in *Zoological Researches in Java*. Back dark-brown; greyish-brown underneath. Entire length four inches six lin., of which the tail one five-eighth of an inch; Extent of flying membrane twelve inches.

2. *Scotophilus castaneus*, Gray.

3. *Nycticeius Belangeri*, Temminck, apud Schinz. Hairs of the back brown at the base, chesnut or olive-chesnut at the apex; beneath light yellowish-brown, isabella or whitish. Entire length $3\frac{1}{2}$ " of which the tail $1'' 11'''$ Extent of flying membrane $13''$.

$$\text{Incis. } \frac{1-1}{6} \quad \text{Canin. } \frac{1-1}{1-1} \quad \text{Mol. } \frac{4.4}{5.5}$$

4. *Nycticeius noctulinus*, Temminck, apud Schinz, is the very young. Above more or less intense brown or rust-coloured; beneath isabella or light greyish-brown. Entire length three to three two-eighth inches, of which the tail seven-eighth to one two-eighth of an inch. Extent of flying membrane eight six-eighth to nine inches. In this state it has frequently been observed clinging to the mother.

$$\text{Incis. } \frac{2-2}{6} \quad \text{Canin. } \frac{1-1}{1-1} \quad \text{Mol. } \frac{4.4}{5.5}$$

This species is exceedingly numerous, forming large congregations in sheltered situations on the Malayan Peninsula, and in the caves on the numerous islands of limestone which stud the shores from Maulmein to Java, and in such localities large deposits of Guano occur. The latter, ("Ty Kláwah" of the Malays, i. e. bats' manure,) has been tried by agriculturists at Pinang, but has been found much less efficacious than the Guano obtained from the swift (*Collocalia*), producing the edible nests.

FRUGIVORA.

GEN.—*PTEROPUS*, *Brisson*.

PTEROPUS EDULIS, *Geoffroy*.

SYN.—*Pteropus javanicus*, *Desm.* apud *Horsfield*.

Pteropus Edwardsii, *Geoffroy*.

“Kalong” of the Javanese.

“Klúang” of the Malays of the Peninsula.

HAB.—*Pinang, Singapore, Malayan Peninsula and Islands.*

Java, Sumatra, Banda, Bengal, Assam.

GEN.—*CYNOPTERUS, Fred. Cuvier.*

CYNOPTERUS MARGINATUS, F. CUV.

SYN.—*Vespertilio marginatus, Buchanan Hamilton, MSS.*

Pteropus marginatus, Geoffroy.

Pteropus titthæcheilus, Temm.

Pachysoma titthæcheilus, Temm.

Pachysoma brevicaudatum, Is. Geoff.

Pteropus brevicaudatus, Schinz.

Pachysoma Diardii, Isid. Geoff.

Pteropus Diardii, Schinz.

Pachysoma Duvaucellii, Is. Geoff.

Pteropus pyrivorus, Hodgson, apud Gray.

HAB.—*Singapore, Pinang, Malayan Peninsula and Islands.*

Java, Sumatra, Southern Mahratta Country, Bengal, Nipal.

The colour is very variable, not only individually, but according to age and sex, which has given rise to several supposed distinct species. But they all resemble each other in habits and dentition, they occupy one common place of rest, and their new-born, or very young, are of a uniform colour. The ears of the adult are, in all, more or less distinctly margined with white.

1. *Cynopterus marginatus.* Back reddish, or brownish-grey; lighter underneath.

2. *Pachysoma titthæcheilus.* 3. *Pteropus brevicaudatus.* Male: back reddish or olive-brown; a tuft of hair on the sides of the neck, the chest, and the sides of the greyish abdomen rusty, or orange-coloured. Female: above yellowish, or greyish-brown; beneath lighter. In some individuals from Malacca, the flying membrane is of a light reddish-brown.

4. *Pachysoma Diardii:* Back greyish-brown; abdomen greyish, brown on the sides.

5. *Pachysoma Duvaucellii*: pale greyish-brown.

The following is a description of a new-born. The upper part of the head, the nape of the neck, the back and the posterior surface of the humerus and femur, were covered with dense, soft, short hairs, of a dark greyish-brown; all the rest of the body was naked, of a greyish-black colour. The eyelids were not yet separated. The joints of the bones of the extremities were cartilaginous. The nails of the thumb and index were developed, but the feet and nails of the toes had already attained the size of the adult. The tongue was considerably extensile. The teeth present were:

$$\text{Incis. } \frac{4}{4} \quad \text{Canin. } \frac{1-1}{1-1} \quad \text{Mol. } \frac{2.2}{2.2}$$

Entire length, one and four-eighth of an inch, of which the slightly projecting tail two-eighth inch. Extent of the flying membrane, six and four-eighth inches.

In an individual measuring two and four-eighth inches in length, with an extent of the membrane of nine inches, the face and the lower parts, excepting the throat, had become scantily covered with light brownish-grey, short hairs. The eyelids were separated. The shoulder, elbow, hip, and knee-joints, had become ossified, the other joints still remaining cartilaginous.

INSECTIVORA.

GEN.—TUPAIA, *Raffles*.TUPAIA FERRUGINEA, *Raffles*.

SYN.—“Tupai Press,” *Raffles* and *Horsfield*.

Cladobates ferrugineus, *F. Cuv. apud Schinz*.

Sorex Glis, *Diard and Duvaucel*.

Glisorex ferruginea, *Desmarest*.

Hylogale ferruginea, *Temminck*.

Herpestes, *Calcutta Journ. Nat. Hist.**

* Vol. II, p. 458, Pl. XIII½. The explanation accompanying this figure is as follows: “Searching for Col. Farquhar’s drawing of *Rhizomys Sumatrensis* already referred to, I found in the Society a drawing of a bushy-tailed *Herpestes*, differing merely from Mr. Hodgson’s *Gulo Urva*, in having the tail of one uniform colour with the body, without the yellow tip. There is no name or letter on the drawing to shew

“Tupai tana” of the Malays of Pinang.

HAB.—*Pinang, Singapore, Malayan Peninsula.*

Sumatra, Java, Borneo.

The young of this very numerous species in hilly jungle, is easily tamed, and becomes familiar with its feeder, though towards strangers it retains its original mistrust, which in mature age is scarcely reclaimable. In a state of nature it lives singly or in pairs, fiercely attacking intruders of its own species. When several are confined together, they fight each other, or jointly attack and destroy the weakest. The natural food is mixed insectivorous and frugivorous. In confinement, individuals may be fed exclusively on either, though preference is evinced for insects; and eggs, fish, and earth-worms, are equally relished. A short peculiar tremulous whistling sound, often heard by calls and answers, in the Malayan jungle, marks their pleasurable emotions, as for instance, on the appearance of food, while the contrary is expressed by shrill protracted cries. Their disposition is very restless, and their great agility enables them to perform the most extraordinary bounds in all directions, in which exercise they spend the day, till night sends them to sleep in their rudely constructed lairs in the highest branches of trees. At times they will sit on their haunches, holding their food between the fore-legs, and after feeding, they smooth the head and face with both fore-paws, and lick the lips and palms. They are also fond of water, both to drink and to bathe in. The female usually produces one young; she has four mammæ, the anterior pair of which is situated on the lower lateral part of the chest, the posterior on the side of the abdomen. On the lower surface of the tongue, the frenum is continued to within a short distance of the apex in a raised line, on either side of which the skin is thickened, fringed at the edges, and thus presenting a rudimentary sublingual appendage, somewhat similar

from whence it came, and to prevent its following the fate of Colonel Farquhar's *Rhizomys*, we here afford a copy of it.” Pl. XIII $\frac{1}{2}$ represents no *Herpestes*: the elongated muzzle, the proximity of the large eye to the ear, which is exposed, and not hidden by the hairs of the cheek, are characters foreign to every known species of *Herpestes*. The draughtsman has very correctly represented a *Tupaia*, and the drawing, reappearing as a *Herpestes* in the *Calcutta Journal of Natural History*, has, by Mr. Blyth, been traced to be the original of Pl. IX, *Asiatic Researches*, Vol. XIV, where it properly accompanies the description of *Sorex Glis*, (i. e. *Tupaia ferruginea*) of MM. Diard and Duvaucel.

to that observed in *Nycticebus tardigradus*; though in *Tupaia ferruginea* the fringes of the margin only are free, the rest being attached to the tongue, but easily detached by a knife. The lateral raised lines of the palms and soles, the posterior part of the first phalanges, and the third phalanx (second of the thumbs,) which is widened into a small soft disk, in fact all the points which rest upon the ground, are studded with little transversely curved ridges or duplicatures, similar to those observed under the toes, of some of the *Geckotidæ*, which fully account for the precision, the 'aplomb,' with which these animals perform the astounding leaps from below, barely touching with the soles the point d'appui above. In a cage, the Tupai will continue for hours vaulting from below, back downwards, poise itself for an instant, continuing back downwards under the horizontal roof, and regain the point of starting, and thus describe a circle—the diameter of which may be three to four times the length of the animal,—in far shorter time than is required for the description. In a young male, measuring from the nose to the root of the tail seven and three-fourth inches, the tail six and a half inches, the dimensions of the intestinal canal were:

Small Intestines,.. . . . 3 feet $4\frac{1}{2}$ inch.; diameter $\frac{1}{8}$ inch.

Large ditto,.. 0 ,, $3\frac{3}{4}$,, ,, $\frac{1}{5}$,,

Cæcum,.. 0 ,, $0\frac{3}{4}$,, ,, $\frac{1}{16}$,,

Costæ veræ: 8 pairs; spuria: 5 pairs = 13 pairs.

This species* is infested with a Tick of the following description: *Ixodes Tupaiaæ*. Body suboval, shining dark-green olive; scaly plate, palpi casing the pointed sucker, and the legs: pale reddish-brown. Length, when swollen, three-eighth inch.

GEN.—GYMNURA, *Raffles*.

GYMNURA RAFFLESII, Vigors and Horsfield.

SYN.—*Viverra gymnura*, *Raffles*.

“Tikus ámbang búlan,” *Raffles*.

HAB.—*Malacca*.

Sumatra, Singapore.

In a district not distant from Malacca, the animal is said to be numerous, though not to be seen in other localities.

* Single light coloured individuals occur with the back, limbs and abdomen greyish, whitish, or isabella.

GEN.—SOREX, *Linné*.

SOREX MURINUS, *Linné*.*

SYN.—*Sorex myosurus*, Pallas, apud Schinz.

Sorex cærulescens, Var, Raffles ?

“Chinchorot” of the Malays of the Peninsula.

HAB.—*Pinang*.

Java.

Dark brownish-grey above; beneath light brownish-grey. Feet and tail flesh-coloured in the living animal, changing to cinereous after death. In the young the colour is more of a bluish-grey, slightly mixed with brown on the back. Length of the head and body five and half inches; tail three inches.

Incis. $\frac{2}{2}$ Canin. $\frac{0}{0}$ Molar, $\frac{8.8}{5.5}$

The present differs from the ‘Musk Shrew’ of Bengal (“Choochundr,”) in its proportionally broader, more developed, and from the head more diverging ear, which characters also distinguish it from *Sorex nigrescens*, Gray, which it somewhat resembles in its colours. The smell of musk, emitted by the adult animal, and which in the young is barely perceptible, is much less intense than that of the Bengal Musk Shrew.

CARNIVORA.

GEN.—URSUS, *Linné*

HELARCTOS, Horsfield.

HELARCTOS MALAYANUS, Horsfield.

SYN.—*Ursus Malayanus*, Raffles and Horsfield.

“Brúang” of the Malays.

HAB.—*Malayan Peninsula*.

Sumatra, Tenasserim Provinces, Assam, Nipal.

Colour of the young: snout and lips pale ferruginous. Head, back, and outside of the limbs black, mixed with pale rust colour, in consequence of many of the black hairs having the point, or a part next to the

* The following Syn. are given in Gray's *List of Mam. in British Museum*: *Sorex myosurus*, Pallas. Geoff. Ann. Mus. XVII. *S. Sonneratii*, and *S. giganteus*, I. Geoff. Mem. XV. *S. indicus*, Geoff. Mem. Mus. I. *S. capensis*, Geoff. Ann. Mus. XVII. *S. Pilorides*, Shaw, Mus. Lever. *S. cærulescens*, Shaw, Zool. *S. crassicaudatus*, Licht. Säügeth. *S. nepalensis*, Hodgson. *S. moschatus*, Robinson, Assam. Olivier, Voy. Buffon. H. N. Suppl. VII.

point, of the latter colour. Ears, tail, paws, and inner side of the extremities shining black. The somewhat woolly hairs of the abdomen are faintly marked with ferrugineous, and are mixed with longer stiff black hairs. As observed by Schinz, the mark on the breast is very variable in its form. It may be compared to a crescent, assuming according to the smaller or greater breadth of the limbs, the shape of the letter U, of a horse-shoe, or a heart. In the living animal it is of a pale rust, or orange colour, in some individuals with a few small blackish spots, fading after death to a yellowish-white. A very old male presented the following dentition :

$$\text{Incis. } \frac{6}{6} \quad \text{Canin. } \frac{1-1}{1-1} \quad \text{Molar, } \frac{4. 4 (2+2)}{6. 6 (3+3)}$$

In a young female, three feet in length, the intestinal canal measured fifteen feet. It had neither cæcum nor valve to mark the transition. She had ten grinders in either jaw, of which four were spurious, six true.

GEN.—ARCTICTIS, *Temminck.*

ARCTICTIS BINTURONG, *Fischer.*

SYN.—*Viverra* ? Binturong, Raffles.

Paradoxurus albifrons, F. Cuvier.

Ictides ater, F. Cuvier.

Arctictis penicillata, Temminck.

Ictides ater, Blainv. *Calcutta Journ. of Nat. Hist.**

“Unturong” of the Malays of the Peninsula.

HAB.—*Malayan Peninsula.*

Tenasserim, Arracan, Assam, Bhotan, Nipal.

Java and Sumatra are quoted by M. Schinz, but neither Dr. Horsfield, Sir S. Raffles, nor M. Temminck, (*Discours Preliminaire, Fauna Japonica,*) mention the *Binturong* as inhabiting either of the two islands.

* In the 3rd Vol. of *Calcutta Journ. of Nat. Hist.* p. 410, occurs the following passage : “The *Binturong* was first discovered in Java, but the first notice of its existence on the continent of India will be found in the second volume of this Journal, p. 457,” (sic!) “&c.” Sir Stamford Raffles, who published the first account of this animal, distinctly states, that it was discovered at Malacca, (not *Java*, as erroneously stated,) by Major Farquhar, and Malacca is situated on the continent of India as well as Tenasserim. The fact of its inhabiting *Bhotan*, was according to Cuvier (*Règne Animal*,) first made known by Duvaucel, and the author of the article “*Ictides*” in the *Penny Cyclopædia*, 1838, gives Mr. Hodgson’s authority of the *Binturong*’s inhabiting Nipal, (Kachar, though they occasionally occur in the central region of Nipal.)

The general colour of either sex is black, sprinkled on the body and extremities with pale ferrugineous, produced by some of the hairs having a part next to the point of that colour. In both sexes nearly all the hairs of the head, face and throat are thus marked, which communicates to these parts a whitish or greyish appearance. In the young of either sex there is a faint trace of a white spot over the eyes. The long ear-tufts are always black, the margin of the auricle being either white, or pale rust-coloured. The tail is black, but the hairs of the anterior or basal half, are whitish at the root, or in some uniformly of that colour. The pupil is vertically contracted by the influence of light; the iris is of a beautiful Van Dyke brown. In its habits the *Binturong* is both arboreal and terrestrial, and nocturnal, sleeping till the sun is below the horizon, when it displays great agility in searching for smaller quadrupeds, birds, fishes, earth-worms, insects and fruit. The howl is loud, resembling that of some of the Malayan *Paradoxuri*. The young are easily tamed, but the old animal retains its natural fierceness. Between the anus and penis is situated a large pyriform gland, exceeding two inches in length, partially divided by a deep naked fossa, commencing from the latter organ. The gland secretes a light-brown oily fluid, of a peculiar intense, but not fetid or sickening odour. In a young male, measuring from the nose to the root of the tail, two feet three and five-eighth inches, the tail two feet two and a half inches, the intestines were of the following dimensions :

Small Intestines,	..	..	7 feet 11 inches.
Large ditto,	..	..	1 foot 10 inches.
Cæcum,	..	..	0 $\frac{1}{2}$ inch.

The circumference of the small intestines about seven-eighth inches; of the large but little more, but the rectum was thickened two inches in circumference.

The short cæcum is crescent-shaped, or lengthened pyriform. The stomach is remarkably lengthened cylindrical, the parietes much thickened towards pylorus. Oesophagus enters close to fundus ventriculi, in consequence of which there is but a slight difference between the curvatures.

Length along the greater curvature,	..	1 foot 2 inches.
„ „ „ smaller „	..	1 „ 1 „

The circumference from cardia round fundus ventriculi measured five and a half inches; round pylorus two six-eighth inches. Both the gall-bladder and the spleen presented a remarkably elongated shape. The former organ, lengthened pyriform, measured in length two inches; ductus cysticus two and a half inches. The spleen, tapering to a narrow point, was half an inch broad, and eight and a half inches in length. Costæ veræ, nine pairs; spuria, five pairs = fourteen pairs.

GEN.—MUSTELA, *Linné.*

PUTORIUS, *Cuvier.*

PUTORIUS NUDIPES, *Fred. Cuvier.*

SYN.—*Mustela nudipes*, *Desmar. apud Schinz.*

“*Pulásan*” of the Malays of the Peninsula.

HAB.—*Malayan Peninsula.*

Sumatra, Borneo.

The muzzle and the soles of the feet are pale flesh-coloured. The animal is said to inhabit the densest jungle, and is most difficult to obtain.

MUSTELA, *Cuvier.*

MUSTELA FLAVIGULA, *Boddaert.*

SYN.—*Viverra quadricolor*, *Shaw.*

Marte à gorge dorée, *Desmarest.*

Mustela Hardwickii, *Horsfield.*

Martes flavigula, *Hodgson, apud Gray.*

“*Anga Prao*” of the Malays of the Peninsula.

HAB.—*Malayan Peninsula.*

Java, Sumatra, Nipal.

The Malayan individuals differ from those from Northern India, originally described, in having the fur shorter and less dense, the head pale-brown, the neck and back pale yellowish-brown, becoming darker towards the tail, which, as well as the posterior extremities, is black. The anterior extremities are greyish-brown; the feet and the streak behind the ear deep brown; the lips whitish; the throat and chest yellowish-white or ochreous; the scanty hairs of the abdomen pale brownish.

GEN.—LUTRA, Storr.

LUTRA NAIR, Fred. Cuvier.

SYN.—*Lutra indica*, Gray.

“Anjing Ayer” of the Malays of the Peninsula.

HAB.—*Malayan Peninsula*.

China, Bombay, South Mahratta Country.

LUTRA BARANG, Raffles.

SYN.—“Barang Barang” or “Ambrang,” Raffles.

Lutra leptonyx, Wagner, apud Schinz.

Lutra Simung, Schinz ?*

“Mumrang” or “Amrang” of the Malays of the Peninsula.

HAB.—*Malayan Peninsula*.

Sumatra, Borneo.

The young are very playful, and soon become sufficiently domesticated to roam about the house, and to appear when called. Its voice is a short shrill whistling, not unlike the sound of the cricket, but stronger. Its food is not confined to fishes and crustacea; birds and insects are equally relished. The muzzle is hairy, but in the old animal the hairs become rubbed off. The Malayan individuals appear to attain to a greater size than the Sumatran, described by Raffles. An old male measured from the apex of the nose to the root of the tail two feet eight and a half inches; the tail one foot eight inches. In a young male two feet and two inches, and the tail one foot two-eighth of an inch in length, the simple intestinal canal measured nine feet and one inch, with a circumference throughout of about two and two-eighth inches. No cæcum. Each of the kidneys consisted of ten loosely connected glands.

AONYX, Lesson.

AONYX LEPTONYX, Gray: List.

SYN.—*Lutra leptonyx*, Horsfield.

Lutra cinerea, Illiger.

* In Schinz's diagnosis of *Lutra Simung* is said “ungvibus robustis falcularibus,” (“die Nägel an den Zehen sind stark und gekrümmt”) which if the passage refers to *Lutra leptonyx*, Horsfield, must be a mistake, as the original diagnosis expressly states “ungvibus brevibus sublamaribus.” As Schinz describes *Lutra Barang* “ungvibus minutissimis obtusis” *Lutra leptonyx* is probably meant, and thus the one species is mistaken for the other.

Lutra perspicillata, Is. Geoff.

Mustela Lutra, Marsden.

Aonyx Horsfieldii, Gray.

Lutra Barang, apud Schinz?

“Anjing Ayer” of the Malays of the Peninsula.

HAB.—*Malayan Peninsula*.

Java, Sumatra, Singapore, Nipal.

This, as well as the two preceding species, inhabits numerous the banks of the Malayan rivers, and all are at times used by the Malays in river fishing.

GEN.—*CANIS*, Linné.

CUON, Hodgson.

CUON PRIMÆVUS, Hodgson.

SYN.—*Canis primævus*, Hodgson.*

Chrysæus primævus, Hamilton Smith.

Chrysæus soccatus, Cantor.

“Anjing útan” of the Malays of the Peninsula.

HAB.—*Malayan Peninsula*.

Bengal, Nipal.

Some slight differences occur in the Malayan individuals. The inferior surface, the inside of the ears and limbs, the lips and throat, are of the same colour as the back, but much paler. A black carpal spot, like that of the wolf, is very distinct in the male, less so in the female. The young animal of either sex has a faint white spot with a few blackish bristles, situated nearly midway between the angle of the mouth and the ears. Of the wavy wool of the Buansu, the Malayan wild dog, inhabiting a tropical climate, has but a little on the inner side of, and immediately behind the ear; the posterior part of the abdomen is almost naked. The short bristles of the lips, cheeks, throat, and above the eyes, are all black. In habits, so fully described by Mr. Hodgson, and in size, the Malayan agrees with the Nipalese. In a young male, from

* Mr. Ogilby considers *Canis Dukhunensis*, Sykes, and *Canis primævus*, Hodgson, to be identical, and apparently not different from *C. sumatrensis*, Hardwicke, (*Mem. on the Mammalogy of the Himalayahs*, apud Royle.) Colonel Sykes, on the contrary, describes *C. Dukhunensis* as being “essentially distinct from *Canis Quao*, or *Sumatrensis*, Hardwicke.”

the nose to the root of the tail two feet eight and a half inches in length ; the tail one foot, the intestinal canal was of the following dimensions :

Small Intestines,	..	..	..	6 feet	2 inches.
Large, ditto,	..	..	..	0 ,,	10 $\frac{1}{2}$,,
Cæcum,	..	..	..	0 ,,	4 ,,

The latter intestine is spiral, much widened at the origin.

Costæ veræ 8 pairs, spuria 5 pairs = 13 pairs.

The Malays mention another, black wild dog ("Anjing útan étam,") as also inhabiting the densest jungle. A Hyena is also reported to occur on the Peninsula.

Mongrel curs, "pariah dogs," of every description, infest every village, but apparently not uninhabited places, nor localities far distant from the dwellings of man. As they all may be said to be in a state of half domestication, and are of forms very different from the wild dog, which shuns the human presence, their origin cannot with certainty be traced to the Malayan Peninsula.

GEN.—VIVERRA, *Linné.*

VIVERRA ZIBETHA, *Linné.*

SYN.—Viverra undulata, Gray.

Viverra melanurus, Hodgson	} Apud Gray : List.
Viverra orientalis, Hodgson	
Viverra civettoides, Hodgson	
Undescribed Civet, McClelland	

"Tanggalong" of the Malays of the Peninsula.

HAB.—Pinang, Singapore, Malayan Peninsula.

Southern China, Siam, Bengal, Khasyah Hills, Nipal.

Judging by the comparatively few individuals observed in the Straits of Malacca, this species would appear to be far less numerous, than the following. Of several, the largest, which was a female, measured from the apex of the nose to the root of the tail two feet and eight inches ; the tail one foot eight and a half inches.

VIVERRA TANGALUNGA, Gray.

SYN.—Viverra Zibetha, Lin. apud Raffles.

"Tangalung," Raffles.

Viverra Zibetha, Lin. apud Horsfield.

Viverra Zibetha, apud Fred. Cuvier.

Viverra Zibetha, Lin. apud Schinz.*

“Músang jebát” of the Malays of the Peninsula.

HAB.—*Pinang, Singapore, Malayan Peninsula.*

Sumatra, Borneo, Celebes, Amboyna, Philippines.

This species is readily distinguished from *V. Zibetha* by a continuous longitudinal black band occupying the upper surface of the tail, the numerous irregular rings being separated only on its inferior half. (Gray : Proceed. Zool. Society, 1832, p. 63.) The number and distance of the half rings on the lower surface of the tail, vary in different individuals, some of which have either the entire tail, or the anterior half or third of the tail, thus marked, the rest being black. The very young animal is generally of a much darker ground colour than the adult, and the black marks are therefore less conspicuous. Under certain lights the colour appears uniformly black. *Viverra Tangalunga* and *Zibetha*, however similar in habits and general colours, neither live nor breed together. Placed side by side, the living animals present a marked dissimilarity of countenance, which although obvious to the eye, would be most difficult, if possible at all, to convey in words. The female has three pairs of Mammæ, and produces from one to three young. The Malays of the Peninsula distinguish by different names the *Zibetha* and the *Tangalunga*, but as they suppose the civet of the former species to be of better quality, perhaps because it is scarcer, they will frequently offer for sale individuals of the latter, exceedingly numerous species, imposing upon it the name of *V. Zibetha*: “Tanggalong” of the Peninsula. The largest individual of the present species observed, measured in length from the apex of the nose to the root of the tail three feet and one inch; the tail one foot five and a half inches. In a younger, a female, three feet five and a half inches in length, of which the tail one foot and one inch, the intestinal canal was of the following dimensions :

Small Intestines,	..	..	..	7 feet 5 inches.
Large ditto,	..	..	..	0 ,, 9 ,,
Cæcum,	..	..	..	0 ,, 1 ,,

Costæ veræ, seven pairs; spurizæ, six pairs = thirteen pairs.

* The true *Viverra Zibetha*, Linné, is quoted by Schinz under the denominations of *V. bengalensis*, Hardwicke (?), and *V. melanura*, Hodgson.

VIVERRICULA, Hodgson.

VIVERRICULA MALACCENSIS.

SYN.—*Viverra malaccensis*, Gmelin.

Viverra Rasse, Horsfield.

Viverra Gunda, Buchanan Hamilton MSS.

Viverra indica, Geoffroy.

Viverra bengalensis, Gray : Illustr.

Viverra pallida, Gray : Illustr.

Genetta Manillensis, Eydoux.

HAB.—*Malayan Peninsula*.

China, Philippine Islands, Java, Singapore, Cochin-China, Tenasserim Provinces, Bengal, Nipal, Hindoostan, Dukhun, Bombay.

On the Malayan Peninsula this species appears to be more numerous than *V. Zibetha*; less so than *V. Tungalunga*, and in size inferior to either. The largest observed was three feet four inches in length, of which the tail one foot three and a half inches. In a male, measuring from the apex of the nose to the root of the tail, two feet and three-fourth of an inch, the tail one foot one inch, the dimensions of the intestinal canal were :

Small Intestines,	..	..	..	4 feet 0 inch.
Large ditto,	..	..	..	0 ,, 8 ,,
Cæcum,..	..	..	..	0 ,, 0 $\frac{3}{4}$,,

The three preceding species have the following characters in common—The pupil is vertical, oblong; the iris of a rich brown. They are arboreal as well as terrestrial, preying upon the smaller quadrupeds, birds, fish, crustacea, insects and fruit. Naturally very fierce, they are scarcely reclaimable except in youth, but with age the original disposition returns. Their voice is peculiar, hoarse and hissing.

GEN.—PRIONODON, *Horsfield*.

PRIONODON GRACILIS, *Horsfield*.

SYN.—*Viverra*? *Linsang*, *Hardwicke*.

Felis gracilis, *Horsfield*.

Viverra Hardwicke, *Lesson*.

Viverra gracilis, *Desmarest*, apud *Schinz*.

Linsang gracilis, *Müller*, apud *Gray*: *List*, and *Schinz*.

HAB.—*Malayan Peninsula.*

Java, Sumatra, Borneo, Siam.

The ground colour is buff, and the dark marks are of a deep snuff colour, inclining to black with purple reflection. Length from the apex of the nose to the root of the tail: one foot six inches, the tail one foot three six-eighth inches.

Mr. Rappa, for many years a dealer in objects of natural history at Malacca, who previously had been supplied with a figure and description of *Prionodon gracilis*, reported in a memorandum accompanying the specimen, that it had been captured in the jungle at some distance from Malacca. It was unknown to himself and to the natives. At first the animal was fierce and impatient of confinement, but by degrees it became very gentle and playful, and when subsequently suffered to leave the cage, it went in search of sparrows and other small birds, displaying great dexterity and unerring aim in stealthily leaping upon them. Fruit of every description it refused. Another younger individual was captured about the same time, but contrived to make its escape.

GEN.—*PARADOXURUS*, *Fred. Cuvier.*

PAGUMA, *Gray.*

PAGUMA LEUCOMYSTAX, *Gray: List?*

SYN.—*Paradoxurus leucomystax*, *Gray?*

Amblyodon auratus, *Jourdan?*

“*Músang búlan*” of the Malays of the Peninsula.

HAB.—*Malayan Peninsula.*

Singapore, Sumatra.

In a single individual observed, the hairs of the body, limbs and anterior third of the tail, are greyish-yellow at the base, next bright rust-coloured, with the apex shining black, which produces a mixture of ferruginous and black, the latter prevailing on the nape of the neck, middle line of the back, and the anterior third of the tail. The hairs of the vertex and the ridge of the nose are dark at the base, with yellowish points. The large oblique whitish spot in front of the ear, produced by uniformly whitish hairs, is on either side blended with the whitish vertex and ridge of the nose, and is continued down the sides of the neck, forming a large broad arrow-shaped mark. The orbits are dark brown, the face, lips and throat pale brown. The long rigid white

whiskers are mixed with a few shorter black bristles. The feet are dark brown, the posterior two-thirds of the tail uniformly black. The lower surface and the inner side of the extremities are pale ferruginous. From the apex of the nose to the root of the tail: two feet three inches, the tail one foot eight inches.

PAGUMA TRIVIRGATA, Gray: List.

SYN.—*Viverra trivirgata*, Reinwardt, Mus. Leyd.

Paradoxurus trivirgatus, Gray.

“Músang ákar” of the Malays of the Peninsula.

HAB.—*Malayan Peninsula.*

Singapore, Tenasserim.

The ground colour varies from yellowish, or brownish, to blackish-grey. Fur short, peculiarly soft, silky. The dorsal streaks are either continued, undulated, (the central nearly always,) or composed of separate black spots. Some individuals have a short white streak on the ridge of the nose. The largest male measured from the apex of the nose to the root of the tail, two feet two and a half inches; the tail two feet three inches.

PARDOXURUS MUSANGA, Gray.

SYN.—*Viverra hermaphrodita*, Pallas, apud Schinz.

Viverra fasciata, Gmelin?

Viverra Musanga, Marsden, Raffles.

Musang bulan, Raffles.

Viverra Musanga, Var. *javanica*, Horsfield.

Ichneumon prehensilis, Buchanan Halmilton MSS.

Platyschista hermaphrodita, Otto

Paradoxurus Pallasii, Gray

Paradoxurus Crossii, Gray

Paradoxurus dubius, Gray

} apud Schinz.

Paradoxurus Musangöides, Gray.

Paradoxurus typus, apud Schlegel.

Paradoxurus felinus, Wagner, apud Schinz.

“Músang” or “Músang Pándan,” (when the tail is with white point: “Músang Búngkwang,”) of the Malays of the Peninsula.

HAB.—*Pinang, Singapore, Malayan Peninsula.*

Java, Sumatra, Borneo, Timor.

The ground colour and dorsal marks of this exceedingly numerous species are liable to considerable variations, the principal of which are noted by Schinz: individuals occur (probably of every species) with the apex of the tail white, with elongated white spots on the abdomen, with the tail spirally twisted. In most the dorsal marks become indistinct, or invisible in certain lights. The female has from one to three young, of colours similar to the adult, but less distinct, their fur is softer, somewhat woolly, mixed with longer stiff black hairs. The young is tamed without difficulty, and is sometimes kept in houses to destroy rats and mice. The *Paradoxuri* are in habits like the *Civets*. They have an elliptical pupil, vertically contracted by the influence of light. Their glandular secretion is of a peculiar, not civet or musk-like odour. The largest specimen of a great number, measured from the apex of the nose to the root of the tail two feet and half an inch; the tail one foot four and a half inches. In a male, measuring three feet one and a half inch in length, of which the tail one foot four and a half inches, the intestinal canal were of the following dimensions:—

Small Intestines,	..	..	..	..	5 feet 8 inches.
Large ditto,	..	..	..	..	0 ,, 5 ,,
Cæcum,	..	..	..	..	0 ,, 1½ ,,
Costæ veræ, seven pairs; spuræ, six pairs = 13 pairs.					

PARADOXURUS (?) DERBYANUS, Gray.

SYN.—*Paradoxurus*? *Zebra*, Gray.

Hemigalea Zebra, Jourdan.

Viverra Boiei, Müller.

“Musang Batu” or “Sangah Prao” of the Malays of the Peninsula.

HAB.—*Malayan Peninsula*.

Borneo.

The ground colour varies from pale ochreous to buff, and the dark marks in shape and number scarcely alike in any two individuals, from snuff colour to black. The species is apparently not numerous, and is celebrated among the Malays for its great agility. It is said chiefly to feed upon the larger birds, such as the *Argus* pheasant, which it will hunt down, following its prey till the strength of the latter is exhausted, when it falls an easy victim to the indefatigable pursuer. The slender vermiform make, the countenance and distribution of

colours ; the serrated, flattened false molars ; the soles, hairy between and under the toes, and slightly in the centre ; the somewhat removed thumb, are characters by which this animal differs from *Paradoxurus*, and forms a link between that genus and *Prionodon* in the same manner that *Viverricula* connects *Viverra* to *Prionodon*. The largest male observed measured from the apex of the nose to the root of the tail two feet ; the tail one foot and four inches.

GEN.—CYNOGALE, Gray.

CYNOGALE BENNETTII, Gray.

SYN.—*Viverra* (*Limictis*) *carcharias*, Blainville.

Potamophilus barbatus, Kuhl.

Cynogale barbata, Schinz.

HAB.—*Malayan Peninsula*.

Sumatra, Borneo.

The very young, of which two individuals, a male and a female, were found with the mother, differ from the adult in having a very soft, silky, dense fur, mixed with longer hairs, which are black, except on the chest and abdomen, where the apex is silvery. Over the tarsus and on the upper surface of the feet some of the hairs have a subterminal white band, close to the black apex. The posterior margin of the ear is hairy and of a silvery colour. This animal appears to be of rare occurrence on the Malayan Peninsula, and the natives are consequently not acquainted with it. The largest male examined measured from the apex of the nose to the root of the tail two feet three inches ; the tail eight inches:

(*To be continued.*)